

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education and Scientific Research		وزارة التعليم العالي والبحث العلمي
Syrian Virtual University		الجامعة الافتراضية السورية

### **Introduction Document BIM FUNDATION Course**

**Course:** Basics of BIM, Master of Qualification and Specialization in Building Information Modeling and Management - Dr. Sonia Selim Ahmed

Number of sessions: **12** sessions (2 hours)

Course summary:

In view of the need to use modern principles and technologies in the field of construction, BIM comes as a solution to many construction problems. This course will explain how and the importance of adopting BIM models in the construction industry. By presenting a general plan for the stages of work according to the BIM environment, its dimensions and levels, and emphasizing the importance of the social aspect and cooperative performance for the success of that plan. The course will also explain the concept of a BIM implementation plan in companies and the creation of business templates. It will also serve as an introduction to the BIM software environment by explaining the basics of Revit in all disciplines. And to clarify the importance of the conflict detection feature that we get after drawing a three-dimensional model of any facility. Through the course, we will be able to know the most important obstacles to the application of BIM in our Arab countries and the possibility of avoiding them.

Material Code: BIMF

The classes: C1, C2, C3, C4

Article chapters**12**:

chapter number	Chapter title	Brief explanation
1	Introduction to BIM	Definition of BIM, who is BIM, why BIM, The current state of the construction industry. The most important BIM tools.
2	Application obstacles and its importance	Factors affecting the application of BIM, the obstacles to its application, the role of the government, the importance of application to the parties to the

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education and Scientific Research		وزارة التعليم العالي والبحث العلمي
Syrian Virtual University		الجامعة الافتراضية السورية

		project, the future of the industry with BIM.
3	BIM platforms	The work group, the work team, what constitutes a BIM platform, what models are not a BIM platform, the specifications of a BIM leader, the CLOUDING
4	Design review	List the most important applications used for design review
5	The importance of BIM for the owner of the facility	The benefits that BIM provides to the owner in terms of time, cost, facility management, and more
6	The importance of BIM for architects and engineers	A brief explanation of the benefits of BIM for design processes and the range of technical services used in design
7	The importance of BIM for the contractor	Explanation of all expected benefits
8	3D	Coordination between specializations and detection of conflicts
9	4D	Site analysis and planning
10	5D	Cost estimates
11	BIM on the site	Deliver design information to the site, coordinate production, survey site conditions
12	cost control	Cost control, schedule and other management functions
13	Completion & commissioning	Explanation of this stage within the BIM environment.

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education and Scientific Research		وزارة التعليم العالي والبحث العلمي
Syrian Virtual University		الجامعة الافتراضية السورية

outcomes:

Learning Outcomes	Learning Outcomes	Homework (project)	Synchronous sessions	Exam
LO1	The student is provided with the necessary knowledge, concepts and terminology related to building information modeling.	√	√	√
LO2	The ability to determine the benefits of applying BIM in the organization for each party to the project in detail.	√	√	√
LO3	The ability to identify the most important obstacles to the application of BIM	√	√	√
LO4	Ability to understand the process of modeling a simple project.	√	√	√
LO5	The ability to detect conflicts between competencies for the project being modeled.	√	√	√
LO6	Understand the scheduling mechanism in the BIM environment	√	√	√
LO7	Understand the fifth dimension and how to estimate costs in a BIM environment	√	√	√
L 08	Understand the mechanism of cost and time control and work site management	√	√	√

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education and Scientific Research		وزارة التعليم العالي والبحث العلمي
Syrian Virtual University		الجامعة الافتراضية السورية

#### Evaluation Criteria:

Learning Outcomes	Evaluation Criteria To achieve the results, the student must demonstrate the capabilities in:
LO1	<ul style="list-style-type: none"> <li>- It asks inquiry questions about the meaning of each term/concept and how it relates to reality.</li> <li>- He studies the theories and models related to the terms and concepts that were circulated in the lecture.</li> <li>- He writes down all the ideas he has seen in a special booklet that is easy to refer to when needed</li> </ul>
LO2	<ul style="list-style-type: none"> <li>- Submission of a working paper explaining one of the BIM concepts, benefits, obstacles, ... etc.</li> </ul>
LO3	<ul style="list-style-type: none"> <li>- He reviews the proposed project as a case study and raises questions about it.</li> <li>- He collects and categorizes information about his project considered as a case study.</li> <li>- He identifies the programs that serve him in his project.</li> <li>- He writes down the requirements and objectives of his project as a case study.</li> <li>- He reviews the available information about his project and completes the deficiencies in different ways.</li> </ul>
LO4	<ul style="list-style-type: none"> <li>- Learn how to relate the 3D model to the project time plan.</li> <li>- He reviews the information and data required for the plan using the BIM environment.</li> </ul>
LO5	<ul style="list-style-type: none"> <li>- Learn how to form a three-dimensional model to coordinate disciplines.</li> <li>- Detecting discrepancies between disciplines.</li> </ul>
LO6	<ul style="list-style-type: none"> <li>- Learn how to link the 3D model to project scheduling using the concept of 4D and the software used in the BIM environment.</li> </ul>
LO7	<ul style="list-style-type: none"> <li>- he can extract the bills of quantities for his project from the BIM environment</li> </ul>

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education and Scientific Research		وزارة التعليم العالي والبحث العلمي
Syrian Virtual University		الجامعة الافتراضية السورية

	<ul style="list-style-type: none"> <li>- Identifying the cost estimation methods used in the BIM environment.</li> </ul>
LO8	<ul style="list-style-type: none"> <li>- recognize the mechanism of site analysis.</li> <li>- Recognize the mechanism of cooperation between the project parties within the site.</li> <li>- Identifying the mechanisms of cost control during work to accommodate changes in the project.</li> </ul>

#### Instructions:

Generating Evidence: The student individually prepares a brief report in which he demonstrates his ability to understand the previous outcomes, and this is before he takes the exam and deals with:

- One of the topics suggested by the subject's teacher about one of the concepts explained within the course.

#### References

- First - Arabic books:
- .1The way to BIM - a guide for companies and individuals. Omar Selim, d. Sonia Ahmed. 2008.
- Second - foreign books:BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors 2nd Edition. 2008. by Chuck Eastman (Author), Paul Teicholz (Author), Rafael Sacks (Author), Kathleen Liston (Author)
- BIM for Design Firms: Data Rich Architecture at Small and Medium Scales 1st Edition. by François Lévy (Author), Jeffrey W. Ouellette (Author).
- Building Information Modeling For Dummies. by Stefan Mordue (Author), Paul Swaddle (Author), David Philp (Author).

Syrian Arab Republic		الجمهورية العربية السورية
Ministry of Higher Education and Scientific Research		وزارة التعليم العالي والبحث العلمي
Syrian Virtual University		الجامعة الافتراضية السورية

### Third - websites related to the course:

- [MEP Building Information Modeling \(BIM\) Services \(mepbim.com\)](http://mepbim.com)
- <http://bimforum.pbworks.com/>
- <http://www.wbdg.org/>

**Virtual meetings:** The virtual meetings continue concurrently with the simultaneous sessions and listen to all the requirements of the students.